

REMARKS

Claims 1-20 are pending in the application, claim 21 has been added and claim 1 has been amended to better describe the invention. Claims 11 and 12 have been cancelled. The Applicants respectfully reserve their right to pursue the cancelled subject matter in a continuation or continuation-in-part application at a later date. Support for new claim 21 can be found throughout the specification and claims and in particular at page 8 of the International Published priority document (WO 2005/040177). Favorable consideration of the application as amended is respectfully requested.

In the Office Action, claims 11 and 12 have been rejected under 35 U.S.C § 102(b) as allegedly being anticipated by United States 6,075,158 to Hill. It is noted that the Examiner incorrectly identified the inventor as "Huang" in the Office Action, however Applicants have used the patent number to properly identify the cited art and will refer herein to this cited reference as Hill, the proper inventor.

Claim 11 was also rejected under 35 U.S.C § 102(b) as allegedly being anticipated by United States 2,759,962 to Zenftman et al. (herein referred to as Zenftman) and separately by United States 4,034,023 to Hardy Sr. et al. (herein referred to as Hardy). By way of this amendment claims 11 and 12 have been cancelled and therefore the rejections of these claims are now moot.

In the Office Action, claims 1-20 have been rejected under 35 U.S.C. §103(a) as allegedly being obvious over Hardy et al. in view of United States Patent No. 3,931,367 to Giolito (herein referred to as "Giolito"). In making the rejection, the Examiner mischaracterizes Hardy as disclosing "reacting the first

reaction product with excess n-butanol at a temperature 35°to about 150°C at 5 to 100mm Hg to prepare crude phosphate ester composing comprising tributyl phosphate, dibutyl phenyl phosphate and butyl diphenyl phosphate...” (See Office Action p. 5). A review of Hardy indicates that the temperature range recited for the second reaction is not 35°to about 150°C, but instead is below 35°C. In fact, Hardy clearly states that the reactants be “reacted in the cold, that is at a temperature below 35°C, during the entire reaction to prevent product loss due to acid hydrolysis.” (See Col.3, lines 6-9). Immediately following this section, Hardy et al. then states the preferred reaction temperature as “15°C to 20°C . . . and maintained at about 20°C to 30°C until the reaction is complete.” The only place in Hardy where the temperature range of “50°C to 150°C” is recited is in the purification and drying of the product, all of which occurs,(as indicated in the section of Hardy reproduced above), after the “reaction is complete.”

In stark contrast, the process of the present invention, as claimed, is conducted at a temperature above 35°C, namely 60 to 200°C. Thus, since Giolito does not correct the factual deficiencies of Hardy, even if Hardy is combined with Giolito the claimed invention would not be obtained. Accordingly, the rejection of claims 1-10, 13-20 under 35 U.S.C. §103(a) must reconsidered and withdrawn. By way of this amendment claims 11 and 12 have been cancelled and therefore the rejection of these claims is now moot.

As stated above, Giolito does not correct the factual deficiencies of Hardy, but even if it did, the fact that Hardy specifically teaches away from using a temperature above 35°C during the entire reaction to prevent product

loss due to acid hydrolysis, one skilled in the art would understand from the Hardy disclosure not to conduct the reaction above 35°C or else product hydrolysis will occur. In essence, Hardy teaches away from using a reaction temperature above 35°C and therefore teaches away from doing what the Applicants have done. Accordingly, one skilled in the art would not look to combine Hardy with any reference using a reaction temperature above 35°C.

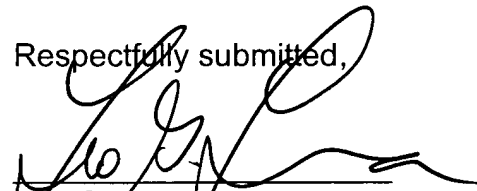
Still further, it has been unexpectedly found that the reaction of dichloromonophenyl phosphate and monochlorodiphenyl phosphate with an aliphatic alcohol, in the presence of a Lewis acid catalyst, in the absence of solvent, at a temperature of above 60 to 200°C, and at a pressure of 0.001 to 1.1 bar absolute pressure (bara) produces product having a higher purity than would have been expected. That is, as shown in the application, particularly, in Table 1, example 3 conducted at a temperature of 120°C and at 150 mm Hg and example 4 conducted at a temperature is 120°C and at 50 mm Hg have a calculated reaction yield (upon adding TTP, 2-ethylhexyldiphenyl phosphate and 2-ethylhexylphenyl phosphate) of 94.4% and 97.4% respectively. In stark contrast, the reaction process recited in Hardy conducted at a temperature below 35°C, so as to avoid by-product, has a yield of 77% and 82% (when 2 molar excess of alcohol is used). Therefore, conducting the claimed process at a temperature of 60 to 200°C unexpectedly produces a more purified product mixture. Accordingly, for this additional reason Hardy in view of Giolito neither teaches nor suggests the process as claimed and therefore the rejection of claims 1-10, 13-20 under 35 USC §103(a) should be reconsidered and withdrawn. Claims 11 and 12 have been cancelled and therefore the rejection

as to these claims are now moot.

Accordingly, in view of the forgoing amendment and accompanying remarks, it is respectfully submitted all claims pending herein are in condition for allowance. Please contact the undersigned attorney should there be any questions.

Early and favorable consideration of the case is respectfully requested.

Respectfully submitted,



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